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PROCEDURE: Engraving Machine Lubrication

Tools Needed: Phillips Head Screw Driver

Materials Needed:
- Solvent such as Alcohol or Acetone or Mineral Spirits
- Clean cloth
- Cotton swab
- Lubricant : TRI FLO is recommended or white lithium grease or machine oil

NOTE: This procedure was written for the large table machine. The earlier machines have a slightly different arrangement of parts but are still lubricated the same way.

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Lubricating the Bearings

BEARINGS: The two linear bearings below the engraving table should be cleaned and lubricated on a periodic basis. The bearings generally do not require any service, but you will find your engraving quality will be at a peak with a clean bearing system. The following procedure should be followed about every one or two months, depending

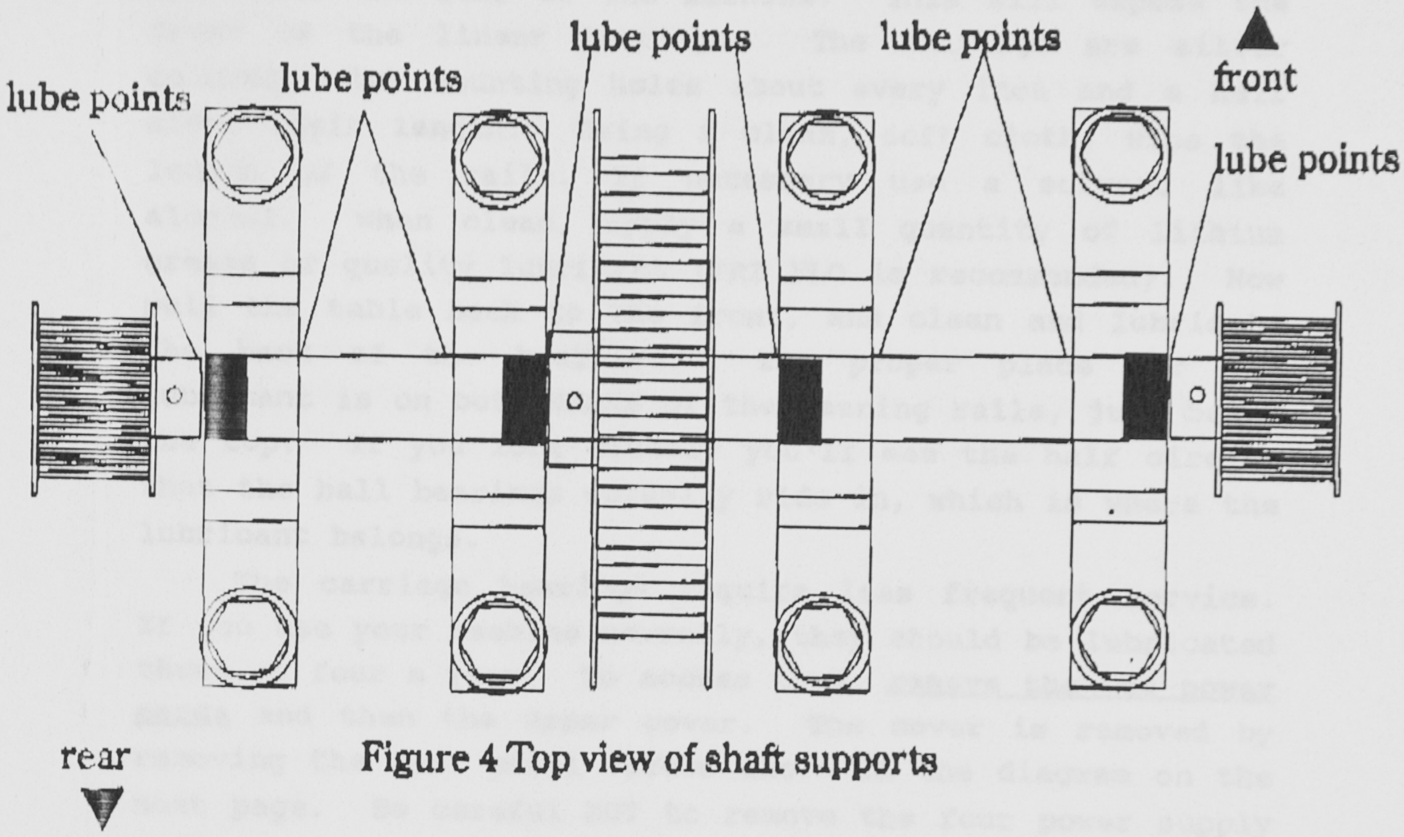
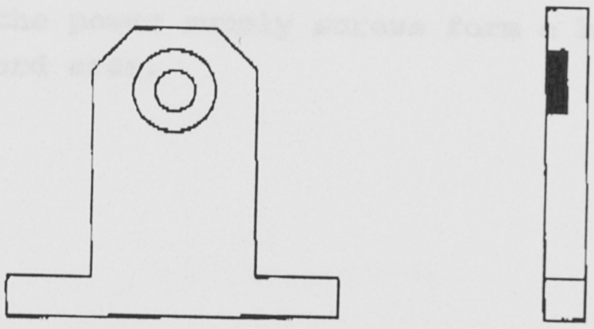


Figure 4 Top view of shaft supports



Shaft Support Side Views

Figure 4

Replace the lower back cover. When replacing the upper cover, please don't push the door into the closed position. The door must be either fully open or resting on the springs. Place the cover back down just as you took it off, and once it's in place, slide it back against the rear panel. The upper and lower cover will line up if it is on correctly. Then replace the five rear panel screws. Plug in the power. Turn on and test the engraver.

a peak with a clean bearing system. The following procedure should be followed about every one or two months, depending on how often you use your machine. Unplug both the engraver power cords. Remove the upper table by loosening the two captive screws and pulling the table out through the door. Then carefully push the lower engraving table completely back into the rear of the machine. This will expose the front of the linear bearings. The bearings are silver colored, with mounting holes about every inch and a half along their length. Using a clean, soft cloth, wipe the length of the rails. If necessary use a solvent like alcohol. When clean, apply a small quantity of lithium grease or quality lubricant (TRI FLO is recommended). Now pull the table back to the front, and clean and lubricate the back of the bearings. The proper place for the lubricant is on both **SIDES** of the bearing rails, just below the top. If you look closely you'll see the half circles that the ball bearings actually ride in, which is where the lubricant belongs.

The carriage bearings require less frequent service. If you use your machine normally, they should be lubricated three or four a year. To access them, **remove the two power cords** and then the upper cover. The cover is removed by removing the rear panel screws shown in the diagram on the next page. Be careful NOT to remove the four power supply screws, which are located in the same area. If you are uncertain, the power supply screws form a box around the fan and power cord area.

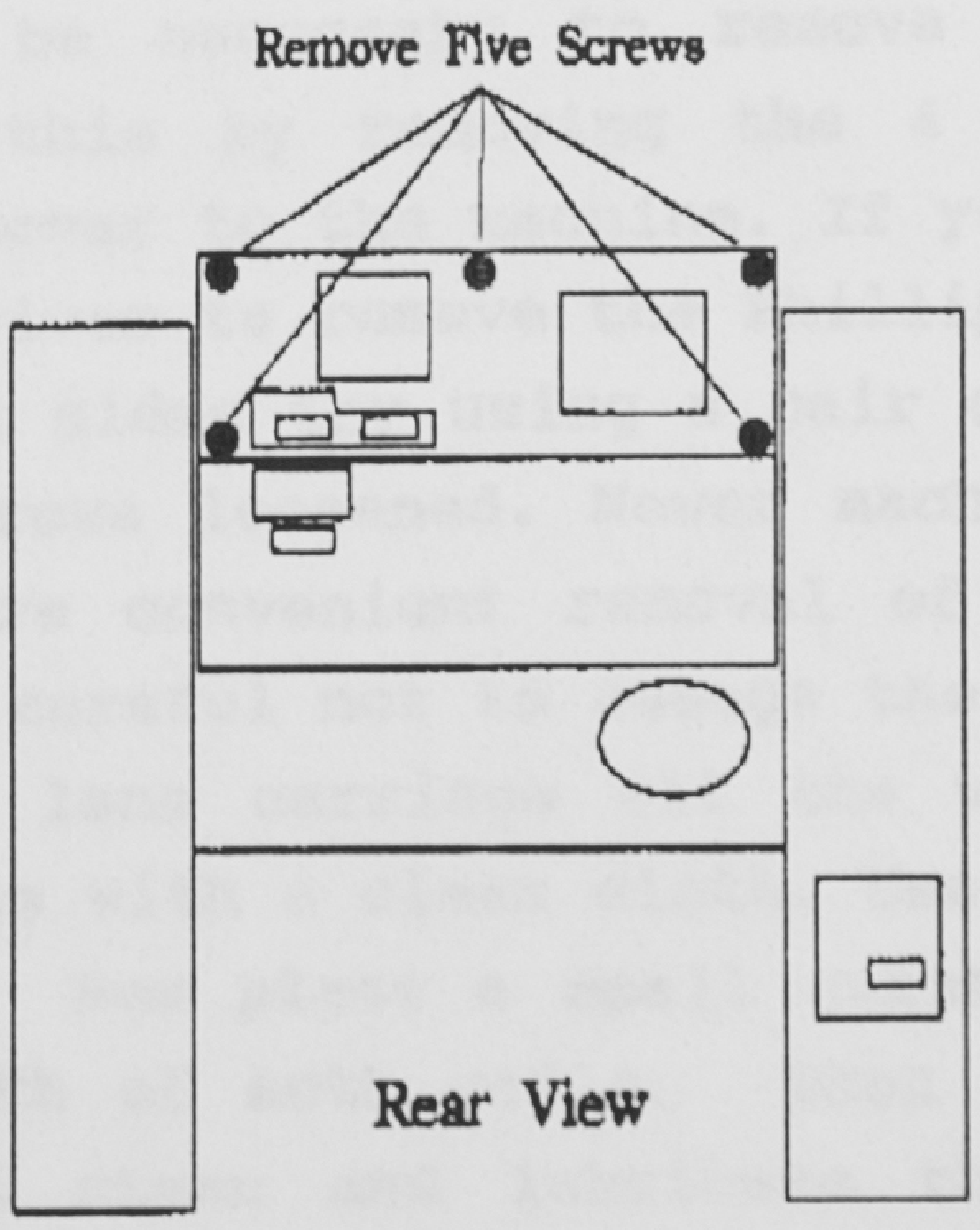


Figure 1

Once the screws are removed, there are two shipping locks that need to be removed. These need only be

Once the screws are removed, there are two shipping locks that need to be removed. These need only be reinstalled to ship your machine. Just inside the door, on the left and right side, you will see two black thumbscrews just like the ones on your lens holder. Loosen and remove these, along with the small brass barrel and lock washer. Leave the door open at this point. The cover cannot be removed with the door latched closed. Now your cover can be slid forwards. It should be a little difficult to move initially, then slide freely about 3 inches to a stop. At this point, lift the cover up and set it aside. The cover is large, and you may need someone to assist. Be careful the door doesn't close on your fingers when you move or lift it.

The carriage bearings are located under the gold cover that is located in the center of the machine. The bearings look similar to the table bearings, only smaller.

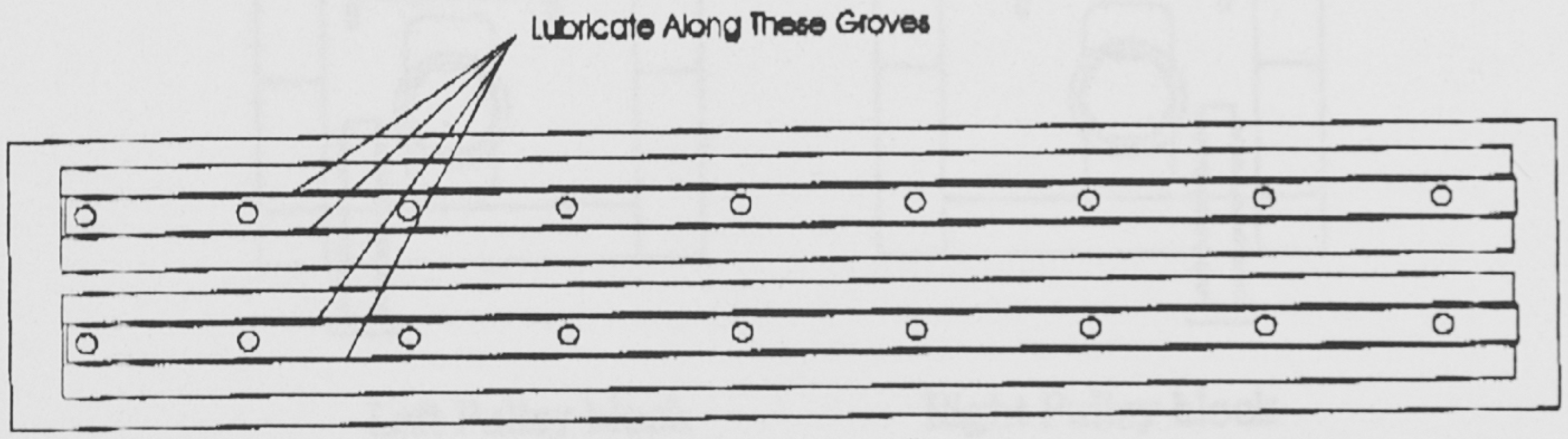


Figure 2

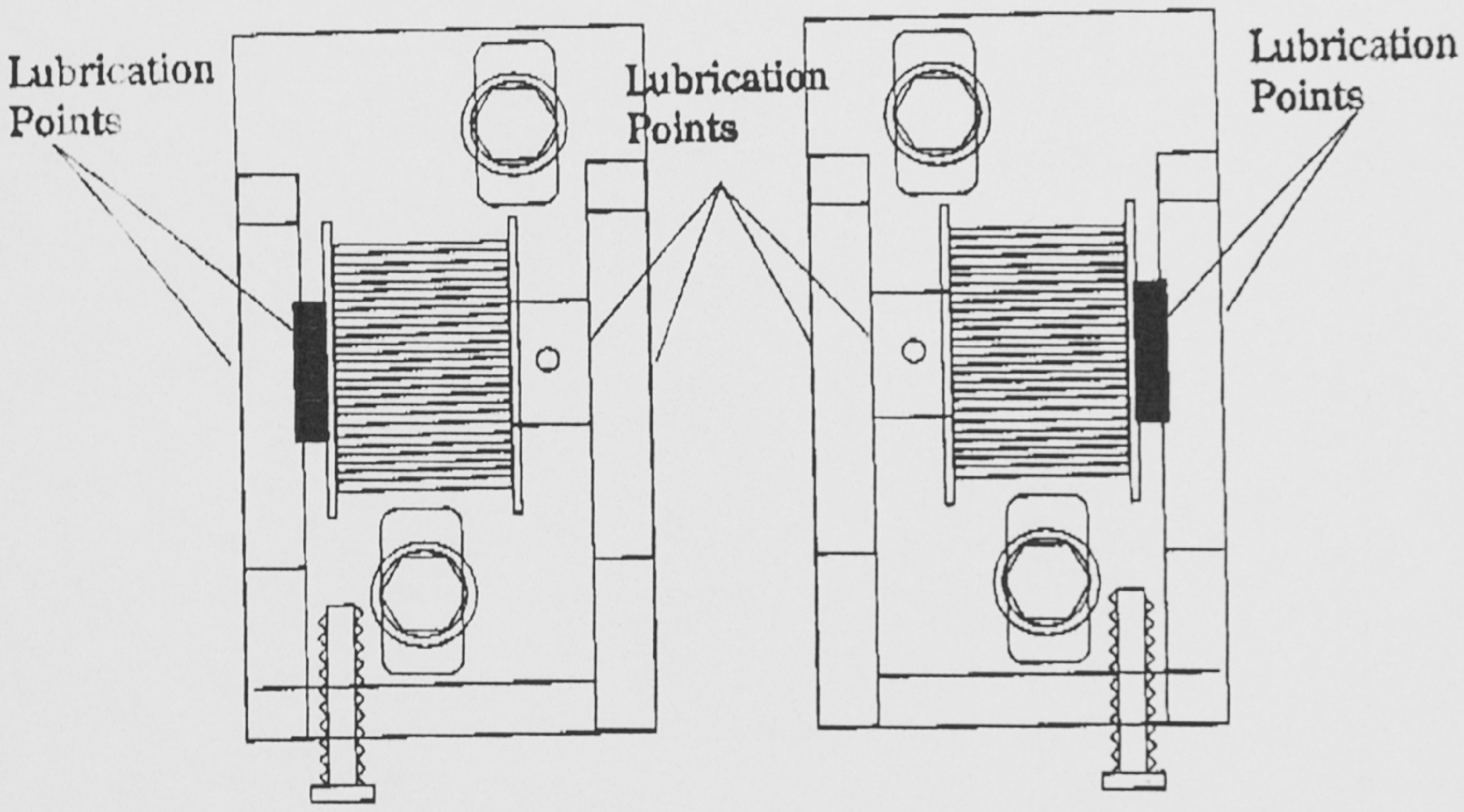
It will be necessary to remove the cover over the bearings. Do this by removing the 4 Phillips head screw securing the cover to the machine. If you don't have a right angle screw driver to remove the Phillips head screws on the right and left sides try using a pair of needle nose pliers to get the screws loosened. Newer machines will have thumb screws for more convenient removal of the cover. Lift the cover off. Be careful not to damage the optical strip.

Push the lens carriage all the way to the left, and clean the rails with a clean cloth. Use alcohol on the cloth if necessary. Now place a small quantity of lubricant for the full length of both rails. Then move the carriage to the right and clean and lubricate the remainder of both rails .

Under the horizontal carriage all the way on the left side of the machine is the pulley for the mirror drive. At the center of the pulley is a shaft that rides on two brass bushings. Give the shaft a drop of lubricant at each end so the center of the pulley is a shaft that rides on two brass bushings. Give the shaft a drop of lubricant at each end so that the lubricant penetrates each bushing. The shaft and bushings can be difficult to access. Use the straw that comes with your lubricant to gain easier access when lubricating the bushings.

Now is a good time to clean the optical strip with a cotton swab or a clean cloth. If compressed air is available gently blow the sensor on the optical strip clean of any trapped debris or dust.

Now put the gold cover back, and secure it with its screws.



Left Pulley block Right Pulley block

Figure 3

Lubricating the Table Bushings.

There are 6 other bushings that need to be lubricated. There are 2 under the table and 4 in the back of the machine.

Slide the table all the way to the back of the machine. You should see 2 pulley blocks. The shafts through the pulleys ride on brass bushings. Carefully lubricate both sides of each pulley with lubricant. TRI FLO is recommended. If TRI FLO is not available use machine oil. Be careful, try not to get lubricant on the drive belts.

Slide the table all the way forward. Look under the horizontal carriage all the way to the back of the machine. You should see 4 shaft support blocks holding a steel shaft. These blocks also need to be lubricated. The easiest way to get to these 4 blocks is to remove the lower back panel. Go to the rear of the machine. Remove the 4 Phillips head screws and remove the lower back panel. Put a drop of lubricant on both sides of each shaft support block.

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